GERMANY AND IRON-ORE SUPPLIES.

DURING the past year there have been continual references in the German technical Press and in the papers read before various technical societies to the immense importance of the Briey and Longwy iron-ore basins for German industry both during and after the war. Gradually the mask is being dropped in technical circles, where the facts are, of course, well known, and the hollow pretence that this war was a war of self-defence on the part of Germany is barely referred to, for these circles at any rate know that it is a war of aggression and spoliation. In February last Dr. M. Schlenker, Syndic of the Saarbrücken Chamber of Commerce, showed that the extraction of iron ore in the Briey basin amounted (calculated by iron contents) to 28 per cent. of the total German ore supply, this latter being made up as to 56 per cent. of domestic production and as to 44 per cent. of imported iron ore. He said that it must be described as a special stroke of good fortune that at the very commencement of the war Germany came into possession of the Briey ore basin, as without the French iron ores it would have been *impossible* for the German iron industry to cover its enormous requirements of munitions; on the other hand, France has lost, as the result of the operations of the war, 85 per cent. of its pre-war iron output. Dr. Schlenker takes for granted that Germany will retain possession of its spoil and thus remain "simply invulnerable in its most important sources of strength and power."

The same story was repeated even more emphatically at the meeting of the Union of German Iron and Steel Manufacturers at Berlin in December last, where it was pointed out that the German supplies of iron ore in the portion of Lorraine annexed in 1871 will be practically exhausted in forty to fifty years, and that the German iron industry needs the Briey ironfield in order to assure its continued existence. Here, again, the demand for the retention by Germany of the Briey and Longwy iron deposits is most insistently put forward.

Somewhat similar conclusions are reached by the writer of an article signed "Politicus" in the *Fortnightly Review* for the current month. After showing that throughout the history of the world Germany's aggressive militarism has been a constant danger to the world's civilisation, he discusses in detail the main sources of military power—namely, man-power and supplies of coal and iron. He indicates that to a considerable extent the former depends upon the latter, because industrial districts are always the most densely populated, and "the greatest centres of population occur on and around the great coalfields." The writer also emphasises the importance of the iron-ore question, though he employs statistics as old as 1910, and therefore not quite correct in the light of modern knowledge; this accounts for his statement that "Germany has by far the largest iron deposits in Europe. France comes second." Recent developments in France have somewhat altered the position as it was known in 1910, and it is now recognised that the quantity of iron ore in France is but little less, and probably even greater, than that of Germany. This fact, however, strengthens rather than weakens his conclusions, which are that "Germany intends to retain the coal- and iron-bearing frontier lands upon which she has seized. . . . If Germany should be allowed to retain her conquests she would not only subject to herself millions of non-Germans, but she would absolutely dominate Europe with the coal and iron monopoly which the war would have given her, and she would thus be able to embark upon the final conquest of the world."

If any confirmation of the correctness of these views and of the real intentions of Germany is required, this is furnished by the recent speech of the German Chancellor, who gave a number of reasons why Germany should retain possession of Alsace-Lorraine, but carefully abstained from even hinting at their supreme economic importance to Germany.

H. L.

NOTES.

THE managers of the Royal Institution reported at a general meeting of members held on February 4 that Dr. Mond, under the conveyance and deed of trust of the Davy-Faraday Research Laboratory, covenanted to pay to the institution before the year 1926 the sum of 62,000*l*. as endowment fund. Dr. Mond's trustees have in the most generous way anticipated the obligation by eight years, and have transferred the sum of 66,500*l*. in 5 per cent. War Stock to the trustees, nominated by the managers, of the Davy-Faraday Research Laboratory Endowment Fund. This will add materially to the income available for the purpose of promoting and maintaining the efficiency of the Davy-Faraday Research Laboratory in the advancement of original research in chemical and physical science.

A MEETING was held at the rooms of the Royal Society of Arts on Monday, February 4, at the invitation of the London Section of the Society of Chemical Industry, to consider the formation of a London Section of the British Association of Chemists. There was an attendance of about 300, including members of the Society of Chemical Industry, the Chemical Society, the Institute of Chemistry, the Society of Public Analysts, and the British Association of Chemists. Dr. Ling took the chair, and briefly explained the reasons for convening the meeting. Prof. Brame outlined the history of the British Association of Chemists and the course of the negotiations between that body and the Institute of Chemistry. Mr. Smith, on behalf of the British Association of Chemists, dealt with the need for some registration authority for chemists and the demand by chemists for a professional association which would not only improve the status of chemists, but also bring into the ranks of the chemist a larger number of well-equipped men than is now the case. He emphasised the importance of chemists from a national point of view, and invited the meeting to form a London Section of the association. After remarks by Prof. Donnan and other speakers, a resolution was passed, with few dissentients, for the formation of a London Section, and a provisional committee of eleven was appointed to proceed with the matter. Mr. Pilcher made a spirited defence of the Institute of Chemistry against some criticisms of that body, and stated that the institute was not antagonistic to the new association.

THE following arrangements have been made in connection with the Royal College of Physicians of London:—The Harveian oration will be delivered on October 18 by Dr. P. Kidd, and the Bradshaw lecture in November by Dr. Aldren Turner. Prof. H. R. Kenwood is to be the Milroy lecturer this year, and Dr. J. McVail in 1919.

THE next meeting of the Faraday Society will be held at the Municipal School of Technology, Manchester, on February 14, when there will be a general discussion on electric furnaces. The discussion will be preceded by the reading of the following papers:—Application of electric furnace methods to industrial processes, H. Etchells; electric furnaces for steel refining, J. Bibby; electric furnace control, A. P. M. Fleming and F. E. Hill; and a high-temperature electric resistance furnace, E. A. Coad-Pryor and W. Rosenhain.

THE death is announced of Prof. J. P. Remington, chairman of the Committee of Revision of the United States Pharmacopœia and professor of the theory and practice of pharmacy in the Philadelphia College of Pharmacy. Prof. Remington was the author of numerous papers on pharmacy, many of which were contributed to the American Pharmaceutical Association, and of the "Practice of Pharmacy," the sixth edition of which was recently published by Messrs. J. B. Lippincott Co.

THE death of Mr. M. Beazley, which is recorded in the *Engineer* for February 1, is the third death among Indian engineers announced last week. Mr. Beazley was born in Bath in 1833. He assisted Mr. Cubitt in the piercing of the Shakespeare Tunnel at Dover for the South-Eastern Railway. He proceeded to India in 1859, and was engaged in the construction of a portion of the Central Indian Railway. Afterwards he served for ten years in the Imperial Chinese Customs.

WE note with regret that the *Engineer* for February 1 records the death of Mr. T. Anderson on January 15. Mr. Anderson spent about thirty-three years in India, thirty of which were in the service of the Royal Indian Marine. He was born in Greenock in 1842, and went to India in 1864. After occupying various positions, he became, in 1881, engineer-surveyor to the Port of Bombay, and was made chief engineer in 1885. After the Burmese war he was sent to Mandalay to value the factories of King Theebaw. Mr. Anderson was an associate member of the Institution of Civil Engineers.

WE notice with regret the announcement of the deaths of several distinguished medical men. Surg.-Gen. Sir Adam Scott Reid, who died in London on February 2, at the age of sixty-nine, was for many years in the Indian Medical Service.—Sir George H. Philipson, ex-president of the British Medical Association and representative of the University of Durham on the General Medical Council, died on January 24, in his eighty-third year.—Sir James A. Russell, for some years demonstrator of anatomy in the University of Edinburgh, afterwards inspector of anatomy and vivisection for the whole of Scotland, and an active fellow of the Royal Society of Edinburgh, died on January 22, at seventy-two years of age.

THE death has occurred of Prof. Amos P. Brown, professor of mineralogy and geology in the Towne Scientific School of the University of Pennsylvania, at fifty-two years of age. A resolution passed at a recent meeting of the faculty of the Towne Scientific School, and published in *Science*, states that among the most notable recent investigations in America was the work done by Prof. Brown in the field of crystallography; specifically the investigations in the classes of crystals found in the hæmoglobins of the entire range of the vertebrate animals. In the course of this investigation Prof. Brown prepared, examined, and calculated the functions of thousands of intricate and minute crystals, deducing from them conclusions highly important alike to organic and inorganic science. This work, carried out in collaboration with Prof. Reichert, is referred to as one of the greatest contributions to exact science ever made in America.

MAJ.-GEN. H. P. BABBAGE, who died at Cheltenham on January 29, aged ninety-three, inherited much of the mathematical ability of his distinguished father, Charles Babbage, mathematician and mechanician, whose famous calculating machine, after many vicissitudes, was pronounced by a committee of the British Association to be, "in the present state of the design, not more than a theoretical possibility." Maj.-Gen. Babbage was educated at University College School and at University College. He joined the East India Company's Army in 1843, served in Assam and during the Mutiny, and was then transferred to civil employment, where he gained reputation as a builder of bridges. He was a learned mathematician, and is best known by his account of his father's work and of the principles of calculating machines, besides papers on mechanical notation and occulting lights. After his retirement from Indian service he engaged in municipal work at Bromley and Cheltenham, and did good service as a vigilant critic of the accounts of these corporations.

PROF. A. N. TALBOT, professor of municipal and sanitary engineering, University of Illinois, has been elected president of the American Society of Civil Engineers. The American Society of Civil Engineers is the oldest American engineering society. It has a membership of 8225, an annual budget of 30,000*l*., and assets of 120,000*l*. As a consulting engineer Prof. Talbot has been connected with many large enterprises, such as the Galveston Causeway, the Chicago City Hall, and numerous waterworks and sewage purification problems. Prof. Talbot is a past-president of the Society for the Promotion of Engineering Education and a past-president of the American Society for Testing Materials. The University of Pennsylvania has conferred upon him the honorary degree of Doctor of Science, and the University of Michigan the honorary degree of Doctor of Engineering.

AN interesting example of the audibility of the sound of a distant fog-horn has been communicated to us by Mr. W. T. Evans, of Treharris, Glam. On January 14, from about 6 to 7 a.m., he heard series of four consecutive blasts, each followed by an interval of silence—the distinctive note of the siren at Nash Lighthouse, on the southern coast of Glamorganshire. Treharris is about twenty miles inland, and is separated from the coast by several ranges of hills. Though all the blasts were distinctly audible, they varied in strength, some being as loud and clear as when heard at other times from a distance of four miles. The fog-horn at Nash, according to a statement by the lighthouse-keeper, was sounding on account of a snow-shower from 6.15 to 7 on the morning in question. A thick mantle of snow lay over the ground at the time, and the air was absolutely calm. The conditions were thus favourable for the transmission of the sound to so great a distance.

MR. H. S. WELLCOME has presented to the War Office, for the use of the British Army Medical Department, a completely equipped motor bacteriological laboratory. The body of the car and its extended weather-proof annexe form a laboratory with a total working space of 219 sq. ft. The equipment includes microscopes, incubators, balance, autoclave, centrifuge, microtome, ice-chest for water samples, and numbers of accessories, the whole being packed in thirteen canteens, which ensures safety in transit under the roughest conditions. A water tank fitted with pump is fixed on the roof of the car, an electric lighting outfit, with dynamo and accumulators, is fitted, and apparatus for the staff mess and sleeping accommodation for the staff are provided. Much ingenuity has been exercised, so that everything is conveniently grouped and easily accessible, and can be packed or unpacked in about two hours. The formal presentation of the laboratory was made a few days ago to Col. Stanistreet, the representative of the War Office.

THE *Times* of February 1 contains an account of an improvement by Dr. S. A. Kapadia in the Lawton method of preserving perishable foodstuffs. In that system the produce was kept under anaerobic conditions, so that putrefactive and other changes were arrested, but the objection to it was that the gas used contained carbon monoxide, forming an explosive mixture in the preserving chamber. The gas used by Dr. Kapadia consists of nitrogen and carbon dioxide, with only a trace of oxygen. Australian apples which had been kept for five weeks in this atmosphere were found to be in as good condition as at first, and the rottenness from some of the specimens had not spread to the neighbouring sound fruit. Raspberries, a fruit very difficult to preserve fresh, after a fortnight of the same treatment were as fresh as when the experiment started, and, moreover, they retained this freshness for four days after removal from the preserving chamber, thus allowing time for the fruit to be marketed. After salted fish had been kept in the preserving chamber for six weeks it appeared to an expert to be in exactly the same condition as when introduced. Similarly, eggs which had been preserved for twenty weeks in the same way could be afterwards boiled without the shell cracking, as if new-laid.

ON account of the warmth and dampness of the air in mines, the timber which is used for props, sleepers, etc., underground is very liable to decay, set up by fungi. Pitwood as a rule lasts a very short time, and has to be speedily replaced. Before the war this class of timber was very cheap, and nothing was done in Britain to lengthen its duration by preservative treatment, although it was known that economies in this direction had been effected in France owing to the experiments that had been undertaken by M. Fayol in the collieries of Commentry, and by Prof. E. Henry in the mines near Nancy. The U.S. Forest Service had also treated a large number of timbers by various methods, and placed them in the coal mines at Pottsville, in Pennsylvania, with convincing results of the efficiency of creosote and zinc chloride as preservatives. Several mining companies in the United States have been using treated timber, and have found it economical. It is most important at the present time to lengthen the life of pitwood in our mines and collieries, as this will result in a lessened demand for seaborne timber. With this end in view, the Department of Scientific and Industrial Research has issued Bulletin No. 1, Memorandum on the Preservation of Timber in Coal Mines, by Prof. Percy Groom. Practical remedial measures against the spread of the spores of the destructive fungi in the galleries are clearly described. The fructifications can be readily removed and burned, provided careful inspection of the timbers is made periodically by an intelligent workman. The mycelia accessible on the surface of the pitwood can be washed off by an antiseptic solution and removed. All the fresh timber put down in the mines should be treated beforehand with creosote or zinc chloride, applied by brushing or impregnated by immersion or pressure methods. When the wood has to last only a relatively short time, other substances may be used, as common salt, magnesium sulphate, and certain mine waters.

A REPORT just issued of the Meteorological Committee for the year ended March 31, 1917, the sixty-second year of the Meteorological Office, shows that considerable activity is maintained in meteorology. Sir Napier Shaw is director, and no change has taken place in the Meteorological Committee constituted under the authority of the Lords Commissioners of H.M. Treasury. The observatories and the stations for the daily weather service have been kept regularly in operation. There has been an unprecedented increase in the work of the forecast division and the instruments division. Many calls have been received for new publications and new editions of existing publications from various sub-departments of the Admiralty, War Office, Air Board, Ministry of Munitions, Board of Trade, and Colonial Office. To meet the increased requirements in the office and to supplement the absence of many members of the staff on military service, use has been made of members of the staff who have reached or passed the age of superannuation in the office. "Summer-time" has entailed some addition to the work, and as the diurnal variations of the weather are so essentially controlled by the sun, the office obtained permission under the Act to retain Greenwich time for the hours of its observations, but this by no means freed the office from much complexity. An interesting inquiry is mentioned, at the instance of Dr. Walker, Director-General of Indian Observatories, into the statistical relation between the weather in the middle of the North Atlantic Ocean and subsequent weather of north-western Europe. Especial mention should be made of an important new work, "Réseau Mondial," for which data have been prepared, which give a compendious review of the meteorology of the globe. This work is a great advance in international meteorology, and the report states that the work is fairly completed for the years 1911, 1912, and 1913.

THE Bihar and Orissa Research Society continues to do excellent work on the antiquities of the province. In the Journal of the society for September last (vol. iii., part 3) Mr. C. W. Anderson describes a find of prehistoric stone implements in the Singhbhum district. The first discovery of such remains dates from 1868. Generally speaking, the trap implements may be classed as Mesolithic, intermediate between the Neolithic and Palæolithic periods. This definition would bring them in line with Prof. Sollas's Azilian stage, if the assumption be made that there was an uninterrupted sequence of industries. But this is by no means a necessary assumption, and such implements as can be compared with European collections rather point to an origin contemporary in the stage of culture, if not in age, with the Magdalenian. If the view recently expressed be correct, that the language of the Kolarian tribes in India may be connected with those of races in the Malayan Peninsula and the Andaman Islands, the present discovery may lead to further interesting identifications.

THE importance of Syria and Palestine as fields for the investigation of prehistoric antiquities is fully illustrated in an important paper by Le Fre Néophytus, entitled "La Préhistoire en Syrie-Palestine," published in *L'Anthropologie*, vol. xxviii., parts 4–5, for July–October, 1917. The practice of human sacrifice in the form of immolation of new-born children in funereal jars is fully established. The historical survey of explorations describes a large number of prehistoric animals the remains of which have been discovered. The Palæolithic period is represented at several sites in the neighbourhood of Bethlehem and Jerusalem, and the periods known as Mesvinian, Mousterian, Aurignacian, Solutrian, and Magdalenian are all more or less fully illustrated by discoveries. The Neolithic age is abundantly represented by examples from Mount Carmel, the banks of the Jordan, and the neighbourhood of the Dead Sea. The writer remarks that though the prehistoric age in Syria and Palestine has not been so fully investigated as in Europe, the materials for its study are abundant, and students of the history of ancient man will share with him in the hope that when peace has been re-established the study of the remains in this important region will be undertaken with still greater hopes of success.

Dr. R. F. Scharff, in the *Irish Naturalist* (December, 1917), gives a long and useful history of the now extinct Irish "greyhound-pig," which survived until recently in the more isolated parts of Ireland. This he is inclined to believe is not a descendant of the wild boar which roamed over the island, but was introduced possibly so far back as the Bronze age. It would seem to be nearly related to the ancient "turf-pig" of the Swiss Lake dwellings and the Lake dwellings of Glastonbury, in Somerset. From this last fact it would seem more probable that the Irish pig was introduced from England rather than from the Continent, as Dr. Scharff is inclined to believe. A great deal of information has been brought together in this short paper, which is further illustrated by photographs.

Island faunas afford us valuable data as to the effects of isolation in regard to the evolution of species. Hence we are glad to note the summary of a study of the birds of the Anamba Islands by Mr. Harry C. Oberholser which appears in the Bulletin of the Smithsonian Institution (No. 98). The material described was collected some years ago by Dr. W. L. Abbott, and includes fifteen subspecies peculiar to these islands. As might be expected, they are all of small species of the Passerine type. It is shown that, so far as their avifauna is concerned, these islands are most closely related to the Malay Peninsula, less so, but about equally, to Sumatra and Borneo, and only slightly to Indo-China.

A very remarkable shrew, *Scutisorex congicus*, is described by Mr. J. A. Allen in the Bulletin of the American Museum of Natural History (vol. xxxvii., 1917). This animal, when originally described by Mr. Oldfield Thomas from a skin and skull from Uganda, seemed to differ from the typical shrews chiefly in its long, thick fur and the great development of the cranial ridges. But a number of specimens have been recently obtained by the American Museum of Natural History Congo Expedition, and among these are several skeletons and specimens in alcohol. The dissection of these has revealed a quite extraordinary condition of the vertebral column, unknown in any other mammal. Briefly, all the vertebræ, from the seventh thoracic to the last lumbar, have the latero-ventral borders so enormously produced that this part of the vertebral column, seen from below, is deeply trough-shaped. Nothing that is known of the habits of this creature affords any explanation of so singular a modification. But it certainly imparts tremendous strength to the backbone. This is well known to the natives, who take "great delight in showing to the easily fascinated crowd its extraordinary resistance to weight and pressure . . . a full-grown man weighing some 160 lb. steps barefooted upon the shrew. Steadily trying to balance himself upon one leg, he continues to vociferate several minutes. The poor creature seems certainly doomed. But as soon as his tormentor steps off, the shrew, after a few shuddering movements, tries to escape, none the worse for this mad experience." Having regard to the fact that fully adult animals do not exceed 243 mm. in length, its weight-carrying possibilities are truly wonderful. The natives hold this animal in great esteem. They are convinced that its charred body, or even its heart, when prepared by their medicine-men, transmits truly invincible qualities. Such precious relics are always worn by those engaging in warfare, or setting out on any equally dangerous enterprise, such as hunting elephants.

The December number of *Terrestrial Magnetism and Atmospheric Electricity* contains an article by Mr. J. P. Ault on the meteorological observations taken by the *Carnegie* during her voyage around the Antarctic continent in the spring of 1916. With a few exceptions, the observations were taken between latitudes 50° and 60° S., from Lyttelton, New Zealand, to South Georgia, Kerguelen, and Lyttelton. The temperature of the sea, the pressure, temperature, and humidity of the air, the direction and speed of the wind, and the position of the ship are given for noon each day. The weather was uniformly bad, the humidity 80 to 90 per cent., the sea and air temperatures only a few degrees above freezing point, and the wind high. With decreasing barometric pressure the wind almost invariably shifted from north to west, became a gale, and as the pressure again increased, shifted to the south-west and blew hard. A comparison of the *Carnegie* observations with those made by the Shackleton expedition during the same period should prove of considerable interest.

The *Chemical Trade Journal* for December 29 contains an interesting article on the perchlorate method of estimating potassium. By the work described the following facts are established:—(1) The perchlorates of sodium, barium, calcium, and magnesium are readily soluble in alcohol containing 0·2 per cent. of perchloric acid, in which potassium perchlorate is almost insoluble. (2) The chlorides of the above metals are completely transformed into perchlorates by evaporating their solutions with excess of perchloric acid. (3) The loss effected by washing one gram of potassium chlorate with 100 c.c. of alcohol containing 0·2 per cent. of perchloric acid and then with 2 c.c. of alcohol amounts to 0·36 per cent. (4) Barium hydroxide is preferable to barium chloride for the preliminary precipitation of sulphates, and, when such large quantities as 0·8 to 1·0 gram of perchlorate are dealt with, it is advisable to use the solid hydroxide. The procedure recommended is as follows:—The solution of the potassium salt is treated with excess of solid barium hydroxide, and the barium sulphate filtered and washed under pressure on an asbestos filter. The filtrate and washings are evaporated with a 50 per cent. excess of perchloric acid in a glass basin until white fumes are evolved, then 25 c.c. of water are added, and the product evaporated to dryness. The residue is taken up with 20 c.c. of alcohol containing 0·2 per cent. of perchloric acid, the potassium perchlorate transferred to an asbestos filter, washed with 80 c.c. of the dilute alcoholic solution of perchloric acid, and then with 2 c.c. of pure alcohol. The filter is dried, weighed, washed with boiling water, dried, and again weighed, the difference in the two weights giving the amount of perchlorate. It does not seem to have occurred to the writer to use a Gooch crucible, and thus reduce the weighings to one, nor does he seem to be aware of the work of W. A. Davis (NATURE, 1912, vol. xc., p. 441), who established most of the above facts, and in addition showed that the loss of potassium perchlorate can be entirely obviated by washing with alcohol saturated with this salt.

MR. ROBINSON SMITH, in an article on efficiency in the *Quarterly Review,* states that the two forces in America that in recent years have done most to put the American house in order, and of which next to nothing is known in Europe, are efficiency and prohibition. Efficiency, or scientific management, as it was termed by its founder, was introduced by Mr. F. W. Taylor, and its methods certainly lead to large increases in the output per worker. Mr. Taylor got his data by timing men at work with a stop-watch, and by seeing whether the men could do more work if they omitted certain movements or rested periodically; hence the term "motion-study." The following illustrates the process applied to a gang of men lifting pig-iron from a ground-pile, walking up an inclined plank, and dropping it into a car at the rate of 12½ long tons per day. "Taylor's first step was to single out one of these men —of the ox-type of man—and on this first day and all day long he was told by the man who stood over him with a watch: 'Now pick up a pig and walk'; 'Now sit down and rest,' and at half-past five in the afternoon the man had loaded 47½ tons of pig-iron on to the car." The author of the article expresses regret at the cold reception which has been given to Mr. Taylor's ideas in Britain, and uses many arguments in its favour. Probably the prejudices which bar the way at present would be modified considerably if workmen were convinced that better wages and shorter working hours would permanently follow the introduction of Mr. Taylor's methods.

SOME recent developments in balancing apparatus are described in a paper read by Mr. N. W. Akimoff before the American Society of Mechanical Engineers and reprinted in *Engineering* for February 1. Mr. Akimoff's original machine consisted in principle in mounting the body which required dynamic balance on a beam hinged at one end and supported on a spring at the other. A "balancing cage" was also mounted on the beam and rotated in unison with the body. By moving masses on the balancing cage, the effect of the rocking couple on the body was neutralised, and from a knowledge of the amount and position of these masses was obtained the information necessary to correct the want of balance in the body. In Mr. Akimoff's latest machine the effects of both static and dynamic want of balance can be readily neutralised by means of a clamp fixed to the body, and having a mass which can be adjusted in radius from the axis of rotation. The clamp can be moved axially and also adjusted for angular position. The effect of static want of balance is first eliminated, and the rocking couple is then got rid of. The machine is ingenious, and appears to be effective in solving a rather troublesome problem.

THE water supply of the city of Brisbane is the subject of an article in the issue of the *Engineer* for January 25, and the following particulars are of interest. The supply is derived chiefly from the Brisbane River. The pumping plant, which is located about twenty miles from the city, and above the tidal region, consists of three triple-expansion, condensing engines, each capable of pumping six million gallons per twenty-four hours. The population supplied is about 158,000, and the average daily consumption forty-six gallons per head. There is an important storage reservoir at Cabbage Tree Creek, a tributary of the Brisbane River, formed by a dam of cyclopean concrete, 740 ft. long (including the by-wash), 125 ft. high, 95 ft. thick at the base, and 10 ft. wide at the top. The surface area of the enclosed lake is 700 acres, and the quantity of water impounded 5,800,000,000 gallons. The rainfall of the district is intermittent; there are long periods of drought alternating with heavy downfalls, which result in floods. The longest recorded period of drought was in 1915, when the Brisbane River was dry for eight weeks. Allowing for evaporation, the available quantity of water, when the reservoir is full, affords 12,000,000 gallons daily for 300 days, and as the present consumption is only seven and three-quarter million gallons per day, there is ample margin for considerably more than a year's supply without the aid of a single drop of rainfall. The dam was ceremonially opened in December, 1916, the work having cost about 172,000*l.*

THE latest catalogue of second-hand books (No. 172) just issued by Messrs. W. Heffer and Sons, Ltd., Cambridge, should be of much interest to readers of NATURE, seeing that it deals mainly with books relating to science. It contains sections devoted to astronomy and meteorology, botany (including forestry and herbal), chemistry, folklore and mythology, geology, mineralogy and palæontology, mathematics, physics and engineering, physiology, anatomy and medicine, and zoology, biology and Nature-study. Copies of the catalogue are obtainable upon application.

OUR ASTRONOMICAL COLUMN.

LUMINOSITIES AND PARALLAXES OF 500 STARS.—The spectroscopic method of determining the absolute magnitudes, and thence the luminosities and parallaxes, of stars has been further improved in detail by Messrs. W. Adams and A. H. Joy, and applied to 500 stars (*Astrophysical Journal,* vol. xlvi., p. 313). For stars of the same spectral type, the enhanced lines and the hydrogen lines are relatively strong in those of high luminosity, and weak in those of low luminosity, while the low-temperature lines behave in a manner directly opposite. For 360 of the stars, measured parallaxes are available for comparison, and the average difference between these and the spectroscopic parallaxes, taken without regard to sign, is 0·026″. The spectral types now within the capacity of the spectroscopic method range from A8 to M. One of the most striking conclusions from this important investigation is that the distinction between "giant" and "dwarf" stars is clearly shown for types M, K, and G, with a slight indication of such separation even in the case of F stars. In the case of the M type the list includes thirty stars brighter than absolute magnitude 3·9, and twelve stars fainter than absolute magnitude 9·5, with none of intermediate brightness. It is considered almost certain, in the case of types M and K at least, that these results cannot be ascribed to the selection of the stars. The catalogue is conveniently arranged, and includes position, proper motion, and visual magnitude, besides other data.

SOLAR HYDROGEN BOMBS.—A remarkable solar phenomenon of short duration has been investigated photographically and visually by Mr. F. Ellerman at the Mt. Wilson Observatory (*Astrophysical Journal,* vol. xlvi., p. 298). It consists of the sudden appearance of a very brilliant narrow band extending for several angstroms on each side of $H\alpha$, which persists as a dark line with little change in width. The duration is only from one to three minutes on the average, and rarely from five to ten minutes. The average width of the bright band is about 8 A., but in an extreme case the band extended over 30 A. These "bombs"